WHAT IS CLAIMED IS:

1. A method for encoding stereoscopic video including first and second images, comprising:

(a) encoding the first image, and outputting a quantized video object and a motion vector of the first image;

(b) receiving the first and second images, and finding a pixel-based horizontal disparity map on the second image with reference to the first image; and

(c) encoding the horizontal disparity map and outputting a quantized horizontal disparity map based on the pixel-based horizontal disparity map and a motion vector.

2. The method of claim 1, further comprising (d) performing variable length encoding on the quantized video object, the motion vector, and the quantized horizontal disparity map, and outputting them as a single stream.

3. The method of claim 1, wherein the quantized horizontal disparity map is allocated to an auxiliary component of a disparity type of the MPEG-4 MAC (multiple auxiliary component) and is encoded.

4. The method of claim 1, wherein the first image is a left image, and the second image is a right image.

5. A method for decoding stereoscopic video including first and second images, comprising:

(a) receiving an encoding stream, and outputting quantized data

of a video object of the first image, a motion vector, and quantized data of a horizontal disparity map;

(b) decoding the video object and reconstructing the first image based on the quantized data of the video object and the motion vector;

(c) decoding the quantized data of the horizontal disparity map based on the quantized data of the horizontal disparity map and the motion vector; and

(d) performing disparity compensation based on the reconstructed first image and the decoded horizontal disparity map, and reconstructing the second image.

6. The method of claim 5, wherein the first image is a left image, and the second image is a right image.

7. A method for encoding stereoscopic video including first and second images, comprising:

(a) encoding the first image, and outputting a quantized video object and a motion vector of the first image;

(b) decoding the quantized video object output in (a), and reconstructing the first image;

(c) receiving the first and second images, and finding a pixel-based horizontal disparity map on the second image with reference to the first image;

(d) encoding the horizontal disparity map and outputting a quantized horizontal disparity map based on the pixel-based horizontal

disparity map and the motion vector;

(e) reconstructing the quantized horizontal disparity map output in (d), and outputting a reconstructed horizontal disparity map;

(f) performing disparity compensation and outputting a pixel value of a disparity-compensated second image based on a pixel value of the first image reconstructed in (b) and a horizontal disparity vector value of the horizontal disparity map reconstructed in (e); and

(g) performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output in (f) to output luminance residual texture, and encoding the luminance residual texture to output quantized luminance residual texture.

8. The method of claim 7, further comprising (h) performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, and the quantized luminance residual texture, and outputting them as a single stream.

9. The method of claim 7, wherein the quantized horizontal disparity map and the quantized luminance residual texture are allocated to the MPEG-4 MAC and then encoded.

10. The method of claim 7, wherein the first image is a left image, and the second image is a right image.

11. The method of claim 7, further comprising (h) performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output in (f) to output

chrominance residual texture, and encoding the chrominance residual texture to output quantized chrominance residual texture.

12. The method of claim 11, further comprising (i) performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, the quantized luminance residual texture, and the quantized chrominance residual texture, and outputting them as a single stream.

13. The method of claim 11, wherein the quantized horizontal disparity map, the quantized luminance residual texture, and the quantized chrominance residual texture are allocated to the MPEG-4 MAC and then encoded.

14. A method for decoding stereoscopic video including first and second images, comprising:

(a) receiving an encoding stream, and outputting quantized data of a video object of the first image, a motion vector, quantized data of a horizontal disparity map, and quantized data of luminance residual texture;

(b) decoding the video object and reconstructing the first image based on the quantized data of the video object and the motion vector;

(c) decoding the quantized data of the horizontal disparity map based on the quantized data of the horizontal disparity map and the motion vector;

(d) decoding the quantized data of the luminance residual texture

based on the quantized data of the luminance residual texture and the motion vector;

(e) performing disparity compensation based on the reconstructed first image and the decoded horizontal disparity map, and outputting disparity-compensated luminance texture; and

(f) adding the disparity-compensated luminance texture and the luminance residual texture reconstructed in (d) to reconstruct the second image.

15. The method of claim 14, wherein the first image is a left image, and the second image is a right image.

16. The method of claim 14, wherein the step (a) comprises receiving the encoding stream, and additionally outputting quantized data of chrominance residual texture,

the step (d) comprises additionally decoding the quantized data of chrominance residual texture based on the quantized data of chrominance residual texture and the motion vector, and

the step (f) comprises additionally adding the disparity-compensated chrominance texture and the chrominance residual texture to reconstruct the second image.

17. A method for encoding stereoscopic video including first and second images, comprising:

(a) encoding the first image, and outputting a quantized video object and a motion vector of the first image;

(b) decoding the quantized video object output in (a), and reconstructing the first image;

(c) receiving the first and second images, and finding a pixel-based horizontal disparity map and a pixel-based vertical disparity map on the second image with reference to the first image;

(d) encoding the horizontal disparity map and outputting a quantized horizontal disparity map based on the pixel-based horizontal disparity map and the motion vector;

(e) encoding the vertical disparity map and outputting a quantized vertical disparity map based on the pixel-based vertical disparity map and the motion vector;

(f) reconstructing the quantized horizontal disparity map output in (d), and outputting a reconstructed horizontal disparity map;

(g) reconstructing the quantized vertical disparity map output in (d), and outputting a reconstructed vertical disparity map;

(h) performing disparity compensation and outputting a pixel value of a disparity-compensated second image based on a pixel value of the first image reconstructed in (b), a horizontal disparity vector value of the horizontal disparity map reconstructed in (f), and a vertical disparity vector value of the vertical disparity map reconstructed in (h); and

(i) performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output in (h) to output luminance residual texture, and encoding the

luminance residual texture to output quantized luminance residual texture.

18. The method of claim 17, further comprising (j) performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, the quantized vertical disparity map, and the quantized luminance residual texture, and outputting them as a single stream.

19. The method of claim 17, wherein the quantized horizontal disparity map, the quantized vertical disparity map, and the quantized luminance residual texture are allocated to the MPEG-4 MAC and then encoded.

20. The method of claim 17, wherein the first image is a left image, and the second image is a right image.

21. The method of claim 17, further comprising (j) performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output in (h) to output chrominance residual texture, and encoding the chrominance residual texture to output quantized chrominance residual texture.

22. The method of claim 21, further comprising (k) performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, the quantized vertical disparity map, the quantized luminance residual texture, and the quantized chrominance residual texture, and outputting them as a single stream.

23. A method for decoding stereoscopic video including first and

second images, comprising:

(a) receiving an encoding stream, and outputting quantized data of a video object of the first image, a motion vector, quantized data of a horizontal disparity map, quantized data of a vertical disparity map, and quantized data of luminance residual texture;

(b) decoding the video object and reconstructing the first image based on the quantized data of the video object and the motion vector;

(c) decoding the quantized data of the horizontal disparity map based on the quantized data of the horizontal disparity map and the motion vector;

(d) decoding the quantized data of the vertical disparity map based on the quantized data of the vertical disparity map and the motion vector;

(e) decoding the quantized data of the luminance residual texture based on the quantized data of the luminance residual texture and the motion vector;

(f) performing disparity compensation based on the reconstructed first image, the decoded horizontal disparity map, and the decoded vertical disparity map, and outputting disparity-compensated luminance texture; and

(g) adding the disparity-compensated luminance texture and the luminance residual texture reconstructed in (e) to reconstruct the second image.

24. The method of claim 23, wherein the step (a) comprises receiving the encoding stream, and additionally outputting quantized data of chrominance residual texture;

the step (e) comprises additionally decoding the quantized data of chrominance residual texture based on the quantized data of chrominance residual texture and the motion vector; and

the step (g) comprises additionally adding the disparity-compensated chrominance texture and the chrominance residual texture to reconstruct the second image.

25. An encoder for stereoscopic video including first and second images, comprising:

a video object encoder for encoding the first image, and outputting a quantized video object and a motion vector of the first image;

a disparity estimator for receiving the first and second images, and finding a pixel-based horizontal disparity map on the second image with reference to the first image; and

an auxiliary component encoder for encoding the horizontal disparity map and outputting a quantized horizontal disparity map based on the pixel-based horizontal disparity map output by the disparity estimator and a motion vector output by the video object encoder.

26. The encoder of claim 25, further comprising a variable length encoder for performing variable length encoding on the quantized video object, the motion vector, and the quantized horizontal disparity map, and

outputting them as a single stream.

27. A decoder for stereoscopic video including first and second images, comprising:

a variable length decoder for receiving an encoding stream, and outputting quantized data of a video object of the first image, a motion vector, and quantized data of a horizontal disparity map;

a video object decoder for decoding the video object and reconstructing the first image based on the quantized data of the video object and the motion vector output by the variable length decoder;

an auxiliary component decoder for decoding the quantized data of the horizontal disparity map based on the quantized data of the horizontal disparity map and the motion vector output by the variable length decoder; and

a disparity compensator for performing disparity compensation based on the reconstructed first image output by the video object decoder and the decoded horizontal disparity map output by the auxiliary component decoder, and reconstructing the second image.

28. An encoder for stereoscopic video including first and second images, comprising:

a video object encoder for encoding the first image to output a quantized video object and a motion vector of the first image, and encoding the quantized video object to output a reconstructed first image;

a disparity estimator for receiving the first and second images,

and finding a pixel-based horizontal disparity map on the second image with reference to the first image;

a first auxiliary component encoder for encoding the horizontal disparity map to output a quantized horizontal disparity map, and decoding the output and quantized horizontal disparity map to output a reconstructed horizontal disparity map based on the pixel-based horizontal disparity map output by the disparity estimator and the motion vector output by the video object encoder;

a disparity compensator for performing disparity compensation and outputting a pixel value of a disparity-compensated second image based on a pixel value of the reconstructed first image output by the video object encoder and a horizontal disparity vector value of the reconstructed horizontal disparity map output by the first auxiliary component encoder; and

a second auxiliary component encoder for performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output by the disparity compensator to output luminance residual texture, and encoding the luminance residual texture to output quantized luminance residual texture.

29. The encoder of claim 28, further comprising a variable length encoder for performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, and the quantized luminance residual texture, and outputting them as a single

stream.

30. The encoder of claim 28, wherein the quantized horizontal disparity map and the quantized luminance residual texture are allocated to the MPEG-4 MAC and then encoded.

31. The encoder of claim 28, further comprising a third auxiliary component encoder for performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output by the disparity compensator to output chrominance residual texture, and encoding the chrominance residual texture to output quantized chrominance residual texture.

32. The encoder of claim 31, further comprising a variable length encoder for performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, the quantized luminance residual texture, and the quantized chrominance residual texture, and outputting them as a single stream.

33. The encoder of claim 31, wherein the quantized horizontal disparity map, the quantized luminance residual texture, and the quantized chrominance residual texture are allocated to the MPEG-4 MAC and then encoded.

34. The encoder of claim 28, wherein the disparity estimator additionally outputs a pixel-based vertical disparity map on the second image with reference to the first image;

the encoder for stereoscopic video further comprises a third

auxiliary component encoder for encoding the vertical disparity map and outputting a quantized vertical disparity map based on the pixel-based vertical disparity map output by the disparity estimator and the motion vector output by the video object encoder; and

the disparity compensator performs disparity compensation and outputs a pixel value of the disparity-compensated second image based on the pixel value of the reconstructed first image, a horizontal disparity vector value of the reconstructed horizontal disparity map, and the reconstructed vertical disparity map.

35. The encoder of claim 34, further comprising a variable length encoder for performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, the quantized vertical disparity map, and the quantized luminance residual texture, and outputting them as a single stream.

36. The encoder of claim 34, wherein the quantized horizontal disparity map, the quantized vertical disparity map, and the quantized luminance residual texture are allocated to the MPEG-4 MAC and then encoded.

37. The encoder of claim 34, further comprising a fourth auxiliary component encoder for performing a residual process on the pixel value of the second image and the pixel value of the disparity-compensated second image output by the disparity compensator to output chrominance residual texture, and encoding the chrominance residual texture to output

quantized chrominance residual texture.

38. The encoder of claim 37, further comprising a variable length encoder for performing variable length encoding on the quantized video object, the motion vector, the quantized horizontal disparity map, the quantized vertical disparity map, the quantized luminance residual texture, and the quantized chrominance residual texture, and outputting them as a single stream.

39. The encoder of claim 28, wherein the video object encoder comprises:

an encoding unit for performing a residual process on the first image and the motion compensated data, performing discrete cosine transform and quantization on the data, and outputting a quantized video object;

a decoding unit for performing dequantization and inverse discrete cosine transform on the quantized video object output by the encoding unit, reconstructing the video object data, and storing the reconstructed video object data in a memory;

a motion estimator for comparing the first image with the reconstructed video object data of a previous frame stored in the memory, and outputting a motion vector; and

a motion compensator for comparing the motion vector output by the motion estimator with the reconstructed video object data of a previous frame stored in the memory, and outputting motion

compensation data.

40. The encoder of claim 39, wherein the first auxiliary component encoder comprises:

an encoding unit for performing a residual process on the horizontal disparity map and the motion compensated data, performing discrete cosine transform and quantization on the data, and outputting a quantized horizontal disparity map;

a decoding unit for performing dequantization and inverse discrete cosine transform on the quantized horizontal disparity map output by the encoding unit, reconstructing the horizontal disparity map, and storing the reconstructed horizontal disparity map in a memory; and

a motion compensator for comparing the motion vector output by the motion estimator of the video object encoder with the reconstructed horizontal disparity map of a previous frame stored in the memory, and outputting motion compensation data.

41. A decoder for stereoscopic video including first and second images, comprising:

a variable length decoder for receiving an encoding stream, and outputting quantized data of a video object of the first image, a motion vector, quantized data of a horizontal disparity map, and quantized data of luminance residual texture;

a video object decoder for decoding the video object and reconstructing the first image based on the quantized data of the video

object and the motion vector;

a first auxiliary component decoder for decoding the quantized data of the horizontal disparity map based on the quantized data of the horizontal disparity map and the motion vector;

a second auxiliary component decoder for decoding the quantized data of the luminance residual texture based on the quantized data of the luminance residual texture and the motion vector;

a disparity compensator for performing disparity compensation based on the reconstructed first image output by the video object decoder and the decoded horizontal disparity map output by the first auxiliary component decoder, and outputting disparity-compensated luminance texture and disparity-compensated chrominance texture; and

a first adder for adding the disparity-compensated luminance texture output by the disparity compensator and the reconstructed luminance residual texture output by the second auxiliary component decoder.

42. The decoder of claim 41, wherein the variable length decoder additionally outputs quantized data of chrominance residual texture, and

the decoder for stereoscopic video further comprises:

a third auxiliary component decoder for decoding the quantized data of chrominance residual texture based on the quantized data of the chrominance residual texture and the motion vector output by the variable length decoder; and

a second adder for adding the disparity-compensated chrominance texture output by the disparity compensator and the reconstructed chrominance residual texture output by the third auxiliary component decoder.

43. The decoder of claim 41, wherein the variable length decoder additionally outputs quantized data of a vertical disparity map;

the decoder for stereoscopic video further comprises a third auxiliary component decoder for decoding the quantized data of the vertical disparity map based on the quantized data of the vertical disparity map and the motion vector output by the variable length decoder; and

the disparity compensator performs disparity compensation based on the reconstructed first image output by the video object decoder, the decoded horizontal disparity map output by the first auxiliary component decoder, and the decoded vertical disparity map output by the third auxiliary component decoder, and outputs the disparity-compensated luminance texture and the disparity-compensated chrominance texture.

44. The decoder of claim 43, wherein the variable length decoder additionally outputs quantized data of chrominance residual texture, and

the decoder for stereoscopic video further comprises:

a fourth auxiliary component decoder for decoding the quantized data of chrominance residual texture based on the quantized data of the chrominance residual texture and the motion vector output by the variable length decoder; and

a second adder for adding the disparity-compensated chrominance texture output by the disparity compensator and the reconstructed chrominance residual texture output by the third auxiliary component decoder.

45. The decoder of claim 41, wherein the video object decoder comprises:

a dequantizer for dequantizing the quantized data of the video object output by the variable length decoder;

an IDCT (inverse discrete cosine transformer) for performing inverse discrete cosine transform on the data output by the dequantizer;

a motion compensator for comparing the reconstructed video object data of a previous frame with the motion vector to compensate for motion, and outputting a motion vector; and

an adder for adding the video object output by the IDCT and the motion compensated data output by the motion compensator.

46. The decoder of claim 41, wherein the first auxiliary component decoder comprises:

a dequantizer for dequantizing the quantized data of the horizontal disparity map output by the variable length decoder;

an IDCT (inverse discrete cosine transformer) for performing inverse discrete cosine transform on the data output by the dequantizer;

a motion compensator for comparing the reconstructed horizontal disparity map of a previous frame with the motion vector to compensate

for motion, and outputting a motion vector; and

an adder for adding the horizontal disparity map output by the IDCT and the motion compensated data output by the motion compensator.

47. A method for encoding/decoding stereoscopic video including first and second images, wherein the first image is established as a video object, and the second image as auxiliary information of the first image is allocated to an MPEG-4 MAC and then encoded/decoded.

48. The method of claim 47, wherein the auxiliary information includes at least one of:

a horizontal disparity map having a pixel-based horizontal disparity vector value of a right image with reference to the first image;

a vertical disparity map having a pixel-based vertical disparity vector value of a right image with reference to the first image;

luminance residual texture including the first image reconstructed after encoding, the second image disparity-compensated by a reconstructed disparity map, and residual image data on the luminance component on the input second image; and

chrominance residual texture including the first image reconstructed after encoding, the second image disparity-compensated by a reconstructed disparity map, and residual image data on the chrominance component on the input second image.